

What is claimed is:

1. An exhaust-gas purifying apparatus, comprising:
a mantle;
a support disposed in the mantle, and formed as at least one shape selected from the group consisting of cylinder shapes and corrugated shapes; and
a catalytic layer loaded on at least one of the surfaces of the support;
wherein the support comprises at least two support elements disposed in the axial direction of the mantle, and the two support elements neighboring in the axial direction of the mantle are disposed out of phase with each other in the peripheral direction of the mantle.
2. The exhaust-gas purifying apparatus set forth in claim 1, wherein the support comprise three or more support elements, and the three or more support elements are disposed out of phase with each other in the peripheral direction of the mantle.
3. The exhaust-gas purifying apparatus set forth in claim 1, wherein the support elements are made of a corrugated plate having a cross-section formed as at least one shape selected from the group consisting of letter "S" shapes and letter "U" shapes.
4. The exhaust-gas purifying apparatus set forth in claim 1, claim 1, wherein the support elements are made of a plurality of corrugated plates having a letter "S"-shaped cross-sections.

5. The exhaust-gas purifying apparatus set forth in claim 1, wherein each of the support elements comprises a support-element assembly including a plurality of cylinder-shaped support elements, and at least two of the cylinder-shaped support elements neighboring in the axial direction of the mantle contact with each other with their outer peripheral surfaces in each of the support-element assemblies.

6. The exhaust-gas purifying apparatus set forth in claim 5, wherein at least one of the cylinder-shaped support elements in each of the support element assemblies has a ring-shaped cross-section with a cut-off, and is disposed in the mantle in such an elastically deformed state that it expands in the centrifugal direction.

7. The exhaust-gas purifying apparatus set forth in claim 1, wherein the support elements are formed as a cylinder shape, contact with each other with their outer peripheral surfaces, and are bonded with each other at the contacting outer peripheral surfaces.

8. The exhaust-gas purifying apparatus set forth in claim 1, wherein the support elements contact with and are bonded to an inner peripheral surface of the mantle.

9. The exhaust-gas purifying apparatus set forth in claim 1, the support elements are metallic.

10. The exhaust-gas purifying apparatus set forth in claim 1,

wherein the support elements are formed of a perforated steel plate having a plurality of through holes.

11. The exhaust-gas purifying apparatus set forth in claim 1, wherein the mantle is an exhaust pipe.